

(“Riley et al.”). No other objections or rejections are pending. Applicants respectfully traverse the pending claim rejections for at least the reasons set forth below.¹

A. Section 103(a) Rejections of Claims 41, 43-49, 51, 54-62, 64, and 79

Regarding Applicants’ independent claims 41, 55, and 79, each of these claims, calls for a combination including, for example, “deriving an estimate of said altitude coordinate from information related to an altitude of one or more network elements in said cellular communications system,” “determining at least one approximate search area using the estimate of said altitude coordinate and information provided by the satellite-based system,” and “identifying the coordinates of said mobile terminal in the at least one approximate search area.”

The Examiner acknowledged that “Nir does not teach the altitude coordinate which is related to the cellular communication (base station).” Final Office Action dated February 26, 2009, at 2; non-final Office Action dated September 9, 2008, at 3. Consequently, there is no dispute that Nir et al. fails to disclose or suggest at least “deriving an estimate of *said altitude coordinate*,” “determining at least one approximate search area using the estimate of *said altitude coordinate*,” and “identifying the coordinates of said mobile terminal in the at least one approximate search area,” as recited in Applicants’ independent claims 41, 55, and 79.

¹ The final Office Action contains a number of statements characterizing the Applicants’ disclosure, including the claims, and the related art. Regardless of whether any such statement is specifically addressed herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action. Applicants also note that while the body of the final Office Action rejects all pending claims 41, 43-66, 79, 81, and 82, the cover page of the final Office Action incorrectly identifies the pending and rejected claims as claims 41, 43-49, 51, 54-62, 64, 79, 81, and 82.

In the response filed on December 2, 2008, Applicants explained that Zhao fails to remedy the above-noted deficiencies in Nir et al. See, e.g., Reply to Office Action dated December 2, 2008, at 18-24. For sake of brevity, Applicants incorporate by reference the remarks detailed on pages 18 to 24 of their December 2, 2008, Reply to Office Action.

In the final Office Action, the Examiner considered the Applicants' remarks, yet maintained the rejections of independent claims 41, 55, and 79 on the basis that certain paragraphs in Zhao allegedly disclose the claim elements that the Examiner acknowledged are missing from Nir et al. See, e.g., final Office Act dated February 26, 2009, at 7-8. However, as discussed below, the Examiner's cited passages in Zhao do not disclose the claim elements that are missing from Nir et al. Each of the Examiner's cited passages of Zhao is considered in turn below to illustrate why they do not contain the specific disclosures upon which the Examiner relied in maintaining the claim rejections.

First, the Examiner cited to ¶¶ 0019-0020 in Zhao as allegedly disclosing the step of "[d]eriving an estimate of the altitude coordinate from information related to an altitude of one or more network elements in the cellular communications system." Final Office Action dated February 26, 2009, at 7 (emphasis added). The Examiner's cited ¶¶ 0019-0020 are copied below in full, with certain emphases added:

[0019] In FIG. 4, at block 440, the derived altitude is compared with the reference altitude determined based upon the estimated location. The comparison may be made either at the receiver or at the network. In embodiments where the comparison is made at the network, the derived altitude is sent from the receiver to the network. In embodiments where the comparison is made at the receiver, the network transmits the reference altitude information back to the receiver. The reference altitude information may be an

altitude difference between the reference and derived altitudes, or the reference altitude.

[0020] In FIG. 4, at block 450, if the difference between the derived and reference altitudes exceeds a threshold, a new estimated location is determined at block 460 based upon the reference altitude. The process then iterates by determining a new reference altitude based upon the new estimated location at block 430. There after, the **reference altitude and derived altitude of the new estimated location** are again compared, and the iteration continues until some condition is met, for example the difference between the derived and reference altitudes is at or less than the altitude threshold, or the estimated location converges toward a stable solution. An error variance may be assigned to the altitude measurement, wherein the error variance is a function of the terrain or digital map or other source for the reference altitude.

As shown above, ¶¶ 0019-0020 in Zhao fail to disclose or suggest “one or more network elements,” contrary to the Examiner’s characterization of these paragraphs. For instance, in these cited paragraphs there is no mention of any of the network elements, i.e., base stations 110, base station controller 120, location server 130, shown in FIG. 1 and described in ¶ 0012. Rather, the disclosure of a “network” in ¶ 0019 merely indicates where a comparison of a “derived altitude” and “reference altitude” is performed. The disclosure of a “network” in ¶ 0019 does not hint or suggest of “an altitude of one or more network elements,” let alone “deriving an estimate of the altitude coordinate from information related to an altitude of one or more network elements in the cellular communications system” as the Examiner alleged.

Moreover, the “derived altitude” and “reference altitude” disclosed in the Examiner’s cited ¶¶ 0019-0020 are not altitudes of “one or more network elements.” Rather, the “derived altitude” and “reference altitude” are altitudes “of the new estimated location” of a receiver. See, e.g., Zhao, ¶ 0020 (“reference altitude and derived altitude

of the new estimated location”); Abstract (disclosing “a reference altitude of the receiver” (emphasis added)).

Second, the Examiner improperly relied on ¶ 0026 in Zhao as allegedly disclosing the steps of “[d]etermining at least one approximate search area using the estimate of the altitude coordinate and information provided by the satellite-based system” and “[i]dentifying the coordinates of the mobile terminal in the at least one approximate search area.” Final Office Action dated February 26, 2009, at 7-8 (emphasis added). The Examiner’s cited ¶ 0026 is copied below in full, with emphasis added:

[0026] In still another embodiment, satellite information used to determine the estimated location is transmitted to the network with the estimated location and any derived altitude, for example at block 312 in FIG. 3. A difference between the derived altitude and the reference altitude is determined, and a corrected location of the receiver based upon the satellite information and the difference is determined at the network. Any weighting factors used to determine the estimate location of the receiver may also be transmitted to the network for use in **determining the receiver location**. Once the correct altitude and location of the receiver is determined, the newly determined 3-dimensional position fix can be transmitted back to the receiver or handset. This method can effectively remove the iteration steps used by other embodiments discussed above.

In ¶ 0026 shown above, Zhao does not mention any search areas for identifying the coordinates of a mobile terminal and, indeed, fails to disclose or suggest “at least one approximate search area” as claimed. The word “area” does not appear anywhere in ¶ 0026 and there appears to be no description that reasonably could be construed as allegedly corresponding to the claimed “at least one approximate search area.” To the contrary, this paragraph describes a technique that directly determines the estimated location of a receiver in a network without the use of search areas. For at least this

reason, Applicants submit that it would be unreasonable to maintain the Section 103 rejections on the incorrect assumption that ¶ 0026 allegedly discloses “at least one approximate search area” in the manner claimed.

In short, because of the absence in Nir et al. and Zhao, whether taken individually or in combination, of at least “deriving an estimate of said altitude coordinate from information related to an altitude of one or more network elements in said cellular communications system,” “determining at least one approximate search area using the estimate of said altitude coordinate and information provided by the satellite-based system,” and “identifying the coordinates of said mobile terminal in the at least one approximate search area,” Applicants submit that independent claims 41, 55, and 79, are allowable over the Examiner’s applied art. Dependent claims 43-49, 51, 54, 56-62, and 64 depend on independent claims 41 and 55 and are therefore allowable for at least the same reasons.

B. Section 103(a) Rejections of Claims 81 and 82

Applicants’ independent claim 81 calls for a combination including, for example, “determining whether a geographical data base associating bi-dimensional positioning coordinates with corresponding altitude coordinates is available” and “deriving, in response to determining that the geographical data base is not available, an estimate of said altitude coordinate from information related to an altitude of one or more network elements in said cellular communications system.”

For at least the reasons explained in the response filed on December 2, 2008, none of the cited art, whether taken alone or in combination, discloses or suggests at least “determining whether a geographical data base associating bi-dimensional

positioning coordinates with corresponding altitude coordinates is available” and “deriving, in response to determining that the geographical data base is not available, an estimate of said altitude coordinate from information related to an altitude of one or more network elements in said cellular communications system,” as recited in independent claim 81.

The Examiner acknowledged that “Nir does not teach the altitude coordinate which is related to the cellular communication (base station).” Final Office Action dated February 26, 2009, at 2; non-final Office Action dated September 9, 2008, at 3. Thus, there is no dispute that Nir et al. fails to disclose or suggest at least “determining whether a geographical data base associating bi-dimensional positioning coordinates with corresponding *altitude coordinates* is available” and “deriving . . . *an estimate of said altitude coordinate*,” as recited in Applicants’ independent claim 81.

In the response filed on December 2, 2008, Applicants explained that Zhao fails to remedy the above-noted deficiencies in Nir et al. See, e.g., Reply to Office Action dated December 2, 2008, at 18-24. For sake of brevity, Applicants incorporate by reference the remarks detailed on pages 18 to 24 of their December 2, 2008, Reply to Office Action.

In the final Office Action, the Examiner considered the Applicants’ remarks, yet maintained the rejection of independent claim 81 on the basis that certain paragraphs in Zhao allegedly disclose the claim elements that the Examiner acknowledged are missing from Nir et al. See, e.g., final Office Action dated February 26, 2009, at 8. However, as discussed below, the Examiner’s cited passages in Zhao do not disclose the claim elements that are missing from Nir et al. For example, the Examiner cited to

¶ 0015 in Zhao (copied below with emphasis added) as allegedly disclosing the step of “[d]etermining whether a geographical data base (terrain map or database) associating bi-dimensional positioning coordinates with corresponding altitude coordinate is available.” Final Office Action dated February 26, 2009, at 8.

[0015] In FIG. 2, at block 210, **a referenced altitude of the receiver is determined** based upon the estimated location, for example by using latitude and 25 longitude information from the estimated location to **index the reference altitude on a terrain map or database**. In one embodiment, in FIG. 3, the estimated location determined at the receiver is transmitted to the network at block 312, and the network determines the reference altitude of the receiver based upon the estimated location of the receiver at block 314. In another embodiment, the reference altitude of the receiver is determined at the receiver, for example based upon altitude data stored on the receiver, for example by averaging 3-dimensional position fixes stored previously in memory on the receiver, simply by using the last known altitude from a most recently determined last 3-dimensional position fix, or by utilizing the output of an altitude sensor or other devices. These devices can be either attached or integrated to the receiver or communicate remotely with the receiver from their own locations.

As shown above, ¶ 0015 in Zhao does not disclose or suggest a step of “determining whether a geographical data base . . . is available.” Quite the opposite, in ¶ 0015 Zhao assumes that “a terrain map or database” exists, then discloses that the disclosed “reference altitude” is indexed on the terrain map or database. There is no disclosure in this cited paragraph of first determining whether or not the disclosed terrain map or database is available before indexing the reference altitude. Rather, in ¶ 0015 the disclosed step of indexing the reference altitude on the terrain map or database presupposes that the terrain map or database is available to be indexed.

The Examiner also improperly characterized ¶¶ 0019-0026 in Zhao as allegedly disclosing “[d]eriving in response to determining that the geographical data base is not

available, and [sic: an] estimate of the altitude coordinate from information related to an altitude of one or more network elements in the cellular communications system.” Final Office Action dated February 26, 2009, at 8. As discussed above, Zhao is completely silent regarding a step of “determining that the geographical data base is not available,” as required in independent claim 81. Instead, Zhao assumes the existence of the terrain map or database and, as such, fails to further disclose or suggest any additional step of determining when the map or database is not available. Consequently, Zhao does not consider a step of “deriving, in response to determining that the geographical data base is not available, an estimate . . .,” as recited in independent claim 81.

Further, the Examiner’s cited ¶¶ 0019-0026 in Zhao also fail to disclose or suggest “an altitude of one or more network elements,” let alone “deriving, in response to determining that the geographical data base is not available, an estimate of said altitude coordinate from information related to an altitude of one or more network elements in said cellular communications system,” as recited in independent claim 81 (emphasis added). For instance, in the Examiner’s cited paragraphs ¶¶ 0019-0026 there does not appear to be any mention of the network elements, i.e., base stations 110, base station controller 120, location server 130, shown in FIG. 1 and described in ¶ 0012. Instead, the disclosure of a “network” in ¶¶ 0019 and 0026 merely indicates where a “derived altitude” and “reference altitude” may be processed when determining an estimate location of a receiver. The disclosure of a “network” in ¶¶ 0019 and 0026 does not hint or suggest of “an altitude of one or more network elements,” as claimed, or “deriving an estimate of the altitude coordinate from information related to an altitude

of one or more network elements in the cellular communications system” as the Examiner alleged.

In summary, Applicants’ independent claim 81 is allowable over the art of record for at least the reason that the Examiner’s asserted combination of Nir et al. and Zhao fails to teach or suggest at least “determining whether a geographical data base associating bi-dimensional positioning coordinates with corresponding altitude coordinates is available” and “deriving, in response to determining that the geographical data base is not available, an estimate of said altitude coordinate from information related to an altitude of one or more network elements in said cellular communications system,” as recited in claim 81. Dependent claim 82 depends on independent claim 81 and is allowable for at least the same reasons.

Conclusion

The preceding remarks are based only on the arguments in the Office Action, and therefore do not address patentable aspects of the invention that were not addressed by the Examiner in the Office Action. The claims may include other elements that are not shown, taught, or suggested by the cited art. Accordingly, the preceding remarks in favor of patentability are advanced without prejudice to other possible bases of patentability.

Applicants respectfully request that this response under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 41, 43-66, 79, 81, and 82 in condition for allowance. Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of this response would allow

Applicants to reply to the final rejections and place the application in condition for allowance. Finally, Applicants submit that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims, as presently amended. Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: May 25, 2009

By: 
Stephen E. Kabakoff
Reg. No. 51,276
(404) 653-6477